

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1. (Original): A solid electrolyte comprising an inorganic substance comprising a lithium ion conductive crystalline and being substantially free of an organic substance and an electrolytic solution.
2. (Original): A solid electrolyte as defined in claim 1 wherein the inorganic substance comprising a lithium ion conductive crystalline is substantially free of a pore or a crystal grain boundary which obstructs ion conduction.
3. (Original): A solid electrolyte as defined in claim 1 wherein the inorganic substance comprising a lithium ion conductive crystalline is lithium ion conductive glass-ceramics.
4. (Original): A solid electrolyte as defined in claim 1 comprising an inorganic substance powder comprising a lithium ion conductive crystalline and an inorganic substance comprising Li.

5. (Original): A solid electrolyte as defined in claim 4 wherein the inorganic substance powder comprising a lithium ion conductive crystalline has ion conductivity of 10^{-4}Scm^{-1} or over, has an average particle diameter of $9\text{ }\mu\text{m}$ or below, and is contained in the solid electrolyte in an amount within a range from 50 mass% to 95 mass%.

6. (Original): A solid electrolyte as defined in claim 3 wherein the ion conductive glass-ceramics are in the form of a thin plate.

7. (Original): A solid electrolyte as defined in claim 6 wherein the lithium ion conductive glass-ceramics have a thickness within a range from $15\text{ }\mu\text{m}$ to $200\text{ }\mu\text{m}$.

8. (Original): A solid electrolyte as defined in claim 1 having ion conductivity which is 10^{-5}Scm^{-1} or over.

9. (Original): A solid electrolyte as defined in claim 1 wherein the inorganic substance comprising a lithium ion conductive crystalline has a predominant crystal phase of $\text{Li}_{1+x+y}\text{Al}_x\text{Ti}_{2-x}\text{Si}_y\text{P}_{3-y}\text{O}_{12}$ where $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

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10. (Original): A solid electrolyte as defined in claim 1 wherein the inorganic substance comprising a lithium ion conductive crystalline comprises, in mol %;

Li ₂ O	12 – 18%
Al ₂ O ₃ + Ga ₂ O ₃	5 – 10%
TiO ₂ + GeO ₂	35 – 45%
SiO ₂	1 – 10% and
P ₂ O ₅	30 – 40%.

11. (Original): A solid electrolyte as defined in claim 1 wherein the inorganic substance comprising a lithium ion conductive crystalline comprises, in mass %;

Li ₂ O	3 – 10%
Al ₂ O ₃ + Ga ₂ O ₃	5 – 20%
TiO ₂ + GeO ₂	25 – 40%
SiO ₂	0.5 – 8% and
P ₂ O ₅	40 – 55%.

12. (Currently Amended): A lithium ion secondary battery comprising a solid electrolyte as defined in ~~any of claims 1 – 11~~ claim 1.

13. (Original): A lithium ion secondary battery as defined in claim 12 comprising an inorganic substance comprising a lithium ion conductive crystalline in a positive electrode and/or

a negative electrode.

14. (Original): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is substantially free of a pore or a crystal grain boundary which obstructs ion conduction.

15. (Original): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is a lithium ion conductive glass-ceramics.

16. (Original): A lithium ion secondary battery as defined in claim 13 wherein an average particle diameter of the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is 1/5 or below of an average particle diameter of an active material of the positive electrode and/or the negative electrode comprising an inorganic substance comprising a lithium ion conductive crystalline.

17. (Original): A lithium ion secondary battery as defined in claim 13 wherein an amount of the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is 2 – 35 mass % of an active material of the positive electrode and/or the negative electrode.

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18. (Original): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode comprises, in mol %;

Li ₂ O	12 – 18%
Al ₂ O ₃ + Ga ₂ O ₃	5 – 10%
TiO ₂ + GeO ₂	35 – 45%
SiO ₂	1 – 10% and
P ₂ O ₅	30 – 40%.

19. (Original): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode comprises, in mass %;

Li ₂ O	3 – 10%
Al ₂ O ₃ + Ga ₂ O ₃	5 – 20%
TiO ₂ + GeO ₂	25 – 40%
SiO ₂	0.5 – 8% and
P ₂ O ₅	40 – 55%.

20. (Original): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode has a predominant crystal phase of $\text{Li}_{1+x+y}\text{Al}_x\text{Ti}_{2-x}\text{Si}_y\text{P}_{3-y}\text{O}_{12}$ where $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

21. (Currently Amended): A lithium ion secondary battery as defined in ~~any of claims 13-17~~ claim 13 which comprises, in the positive electrode and/or the negative electrode, the same inorganic substance as the inorganic substance comprising a lithium ion conductive crystalline contained in the solid electrolyte.